CONCRETE COLLAR (MIN. 4,000 PSI) AROUND ENTIRE PERIMETER OF MANHOLE FRAME AND COVER. CONCRETE COLLAR IS ONLY REQUIRED IF MANHOLE IS NOT IN PAVEMENT (SEE NOTE 2).

SUSSEX COUNTY STD. HEAVY DUTY CAST IRON FRAME AND COVER – SEE DETAIL S-1.02

WATER TIGHT HDPE INSERT

CEMENT MORTAR – TO TOP OF GRADE RINGS OR MANHOLE RISER

MANHOLE FRAME AND COVER ADJUSTMENT – SEE DETAIL S-1.03

MANHOLE O–RING GASKET

POLYPROPYLENE MANHOLE STEPS SEE DETAIL SHEET S-1.09

EXTERIOR COATING: 2 COATS OF WATERPROOF BITUMASTIC COMPOUND (24 MILS MIN. TOTAL THICKNESS)

BRICK OR PRECAST CONCRETE BENCH SLOPE @ 1/4 " PER FT.

PIPE TO MANHOLE GASKET TYPICAL FOR ALL OPENINGS

PVC STUB WITH PLUGGED END AT TERMINAL MANHOLE LOCATIONS AS SHOWN ON PLANS (SEE NOTE 4)

8" MIN. #57 STONE

ELEVATION

BRICK OR PRECAST CONCRETE FLOW CHANNEL

NOTES:
2. FOR MANHOLES LOCATED IN DELDOT ROADWAYS, THE FRAME MANHOLE STACK TRANSITION SHALL BE ORIENTED SUCH THAT FRAME AND COVER IS LOCATED OUTSIDE OF THE WHEEL PATH WHENEVER POSSIBLE. PROVIDE INDIVIDUAL CUT SHEETS FOR ALL MANHOLES INSTALLED WITHIN DELDOT ROADWAYS. DELDOT WILL REQUIRE A CONCRETE COLLAR ON STATE MAINTAINED ROADWAYS – REFER TO CURRENT DELDOT REQUIREMENTS.
3. CONCRETE COLLAR DIMENSIONS ALSO APPLY FOR TERMINAL CLEANOUTS WHEN TERMINAL CLEANOUTS ARE NOT IN PAVED ROADWAYS. ALL CONCRETE SHALL BE Poured AGAINST UNDISTURBED EARTH.
4. COUNTY INSPECTOR WILL DETERMINE STUB LENGTH BASED ON FIELD CONDITIONS.
5. CEMENT MORTAR SHALL BE APPLIED AT ALL JOINTS WITHIN MANHOLE.
6. SEE PLANS & SPECIFICATIONS FOR REQUIREMENTS FOR MANHOLES GREATER THAN 48" IN DIAMETER.
TWO (2) 1/2" VENT HOLES

1 1/2" FLAT
FACE GOTHIC

MANHOLE FRAME
AND COVER

SUSSEX COUNTY
ENGINEERING DEPARTMENT

APPROVED:
SUSSEX COUNTY ENGINEER

DETAIL
DATE ISSUED:
S-1.02
5/31/2022

TOP VIEW

SECTION A-A

SEE DETAIL B

CEMENT MORTAR

2 1/2" (INCLUDES 1/8" SPACE FOR HDPE INSERT)

FRAME SECTION

NOTES:
1. SEWER MANHOLE COVERS INSTALLED IN PEDESTRIAN
   WALKWAY MUST BE ADA COMPLIANT.
2. MANHOLE FRAME AND COVER MUST BE PRODUCED
   AND FINISHED IN THE UNITED STATES.
MANHOLE FRAME AND COVER ADJUSTMENT

NOTES:
1. PRECAST MANHOLE SHALL MEET THE REQUIREMENTS OF ASTM C-478 WITH MINIMUM 4,000 PSI CONCRETE STRENGTH AND TYPE 1/II PORTLAND CEMENT.
2. IF ADJUSTMENT HEIGHT EXCEEDS 12", A ONE (1) FOOT RISER INSTALLED BELOW CONE SECTION WILL BE REQUIRED. A MAXIMUM OF THREE (3) GRADE RINGS WILL BE ALLOWED.
3. ALTERNATE MATERIAL GRADE RINGS MAY BE USED FOR MANHOLES LOCATED OUTSIDE OF ROADWAY LIMITS, SUBJECT TO COUNTY APPROVAL.
4. BRICK ADJUSTMENT COURSES PERMITTED, SUBJECT TO DIMENSION REQUIREMENTS NOTED ABOVE.
5. CONCRETE RING SHALL HAVE A DESIGN STRENGTH OF 5000 PSI IN 28 DAYS – DESIGN SHALL MEET REQUIREMENTS OF ASTM C-478.
ELEVATION

NOTES:
1. STAINLESS STEEL STRAPS SHALL BE 1/8" X 1" MIN.
2. S.S. STRAP CONNECTORS SHALL BE EXPANSION BOLTS OR APPROVED EQUAL.
3. A 72" DIAMETER MANHOLE SHALL BE PROVIDED WITH TWO DROP CONNECTIONS IN MANHOLE; A 60" DIAMETER MANHOLE SHALL BE PROVIDED WITH A SINGLE DROP.
4. A DROP MANHOLE IS NOT REQUIRED WHEN THE DIFFERENCE IN INVERTS IS LESS THAN 2'. FOR DIFFERENCES IN INVERTS LESS THAN 2', PROVIDE A SMOOTH TRANSITION WITHIN THE FLOW CHANNEL.
5. INSTALL A RELINER INSIDE DROP BOWL CONSISTING OF BOWL, HOOD, AND SECURED WITH STAINLESS STEEL FASTENERS, OR APPROVED EQUAL.
6. SIZE OF DOWN PIPE SHALL BE PER MANUFACTURER RECOMMENDATIONS, WITH AN 8" MIN. DIAMETER.
NOTE:
SEE DETAIL S-1.01 FOR ADDITIONAL MANHOLE DETAILS.
NOTES:

1. INCOMING INVERT OF PROPOSED SEWER SHALL BE EQUAL TO OR GREATER THAN THE SPRING LINE OF EXISTING SEWER PIPE.
2. CORE MANHOLE WALL AS REQUIRED TO ACCEPT PROPOSED PIPE. OPENING SHALL BE SEALED WITH LINK-SEAL MODULAR SEAL FOLLOWING PLACEMENT OF PIPE.
3. PLACEMENT OF DOGHOUSE MANHOLE SHALL BE SUCH THAT EXISTING PIPE JOINT FALLS ENTIRELY OUTSIDE LIMITS OF MANHOLE.
SUSSEX COUNTY STD. HEAVY DUTY CAST IRON FRAME AND COVER W/ WATERTIGHT INSERT, SEE DETAIL S-1.02

GRADE RING ADJUSTMENT COURSE – SEE DETAIL S-1.03

MANHOLE STEP (SEE DETAIL S-1.09)

MANHOLE (SEE DETAIL S-1.01 OR S-1.05 WHERE APPLICABLE)

GRAVITY SEWER

CEMENT MORTAR

TOP OF BENCH

5’-0” MIN.

ELEVATION

M.J. Reducer

FORCE MAIN PIPE SIZE & MATERIAL AS SHOWN ON PLANS

PIPE DIFFUSER DIA. PER TABLE BELOW

PIPE TO MANHOLE GASKET TYPICAL FOR ALL OPENINGS

NOTES:
1. COAT INTERIOR SURFACES OF MANHOLE WITH AMINE CURED EPOXY, TWO (2) COATS 16.0 TO 24.0 MIL TOTAL
2. SEE DETAIL S-1.01 FOR ADDITIONAL MANHOLE DETAILS

<table>
<thead>
<tr>
<th>FORCE MAIN PIPE DIA. (IN.)</th>
<th>DIFFUSER PIPE DIA. (IN.)</th>
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<tr>
<td>2</td>
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</table>
LOW PRESSURE FORCE MAIN DISCHARGE

MANHOLE STEP
MIN. 1' CLEAR

STAINLESS STEEL PIPE CLAMP
(GRADE 316) MIN. 2" WIDE X 1/8" THICK

NEOPRENE BETWEEN
CLAMP AND PIPE

STAINLESS STEEL NUTS

1/2" DIA. STAINLESS STEEL
EXPANSION BOLTS OR EQUAL

MANHOLE CONNECTION

OPEN END

LINK SEAL

LOW PRESSURE FORCE MAIN -
SEE PLANS FOR PIPE SIZE &
MATERIAL

VARIET

6"

SCHEDULE 80 PVC
SOLVENT WELD JOINTS

GRAVITY SEWER

MANHOLE BENCH

MANHOLE FLOW
CHANNEL INVERT

4'-0" DIA

PROVIDE STAINLESS STEEL PIPE
CLAMPS WITH WALL BRACKETS
AT 2' (MAX) INTERVALS

90' BEND
MORTAR CRADLE TO SUPPORT PIPE

PROVIDE SMOOTH CHANNEL
TO MANHOLE INVERT

NOTES:
1. CONNECTION CONFIGURATION ONLY APPLICABLE TO LOW
PRESSURE SYSTEM CONNECTING INTO EXISTING MANHOLE.
FOR NEW CONSTRUCTION, REFER TO DETAIL S-1.07.
2. COAT INTERIOR SURFACES OF MANHOLE WITH AMINE CURED
EPOXY TWO (2) COATS 16.0 TO 24.0 MIL TOTAL.
CONCRETE WALL

1"  8 3/4"  1"

SEE NOTE 2

NO. 3 REBAR (GRADE 60) ENCASED IN POLYPROPYLENE. PLACE IN VERTICAL ALIGNMENT AT 1'-0" ON CENTER.

1'-0"

1 1/4"

1 5/8"

1/8"

1/2"

1/4"

ELEVATION

NOTES:
1. STEPS SHALL BE ORIENTED OVER BENCH AND NOT FLOW CHANNEL. BOTTOM STEP SHALL BE 12" MAX. FROM TOP OF BENCH.
2. EMBEDMENT LENGTH OF REBAR SHALL BE SUITABLE FOR 5" MIN. WALL THICKNESS.
NOTES:
1. Precast concrete channels may be provided as an alternative to brick flow channel and bench.
2. Bench shall be provided up to pipe crown.
REMOVAL MANHOLE FRAME AND COVER, GRADE RINGS, AND MANHOLE CONE SECTION – SEE NOTE 2.

FILL MANHOLE WITH SAND

FILL MANHOLE SOLID WITH FLOWABLE FILL CONCRETE. (MAX. 200 PSI)

INSTALL MECHANICAL PLUGS INTO ALL Pipes ENTERING AND EXITING MANHOLE – SEE NOTE 1.

NOTES:
1. FOR SEwers 18” AND LARGER, PROVIDE MASONRY PLUG IN LIEU OF MECHANICAL PLUG.
2. ADDITIONAL DEPTH OF MANHOLE MAY REQUIRE REMOval DEPENDENT ON SITE-SPECIFIC CONDITIONS, AS DIRECTED BY COUNTY.
See precast concrete manhole detail S-1.01

Remove a min. 2' section of existing pipe (see note 2)

3,000 PSI concrete around abandoned pipe ends

Disconnected pipe

Install mechanical plugs into all pipes entering manhole and disconnected pipe (see note 1)

Existing pipe to manhole connection to remain

Pipe to remain

Pipe to be abandoned

Notes:

1. For sewers 18" and larger, provide masonry plug in lieu of mechanical plug.
2. Additional pipe may need to be removed depending on location of existing pipe joints.
NOTES:

1. HOT-MIX RAMPING SHALL BE INSTALLED AROUND ALL MANHOLES, VALVES, AND CLEANOUTS WITHIN PAVED AREA IN ACCORDANCE WITH THESE NOTES AT THE TIME OF HOT-MIX BASE INSTALLATION.

2. MAXIMUM EXPOSURE OF CASTING PRIOR TO RAMPING SHALL NOT EXCEED 3 INCHES. THIS MAY REQUIRE MULTIPLE HEIGHT ADJUSTMENTS OF THE CASTING DURING PAVEMENT INSTALLATION.

3. MAXIMUM SLOPE OF RAMPING SHALL NOT EXCEED 5 PERCENT.

4. RAMPING MATERIAL SHALL BE MAINTAINED/REPAIRED UNTIL FINAL COURSE OF PAVEMENT IS INSTALLED.

5. RAMPING MATERIAL SHALL BE REMOVED JUST PRIOR TO FINAL PAVEMENT COURSE OVERLAY.

6. IF HOT-MIX RAMPING OCCURS ON A DELDOT MAINTAINED ROADWAY, RAMPING REQUIREMENTS MAY BE DIFFERENT THAN THOSE SHOWN ON THIS DETAIL.
NOTES:
1. CLEANOUT SHALL NOT TO BE LOCATED WITHIN DITCH, SWALE, ETC.
2. MAINTAIN 10' MIN. OCTARATION BETWEEN SEWER AND WATER LINES.
3. WHERE SEWER MAIN DEPTH IS TOO SHALLOW TO ACCOMMODATE 4' OF COVER, SET LATERAL AT 1.5% FROM MAIN LINE SEWER TO THE PROPERTY LINE TO ACHIEVE THE MAXIMUM LATERAL DEPTH POSSIBLE AT THE PROPERTY LINE.
4. SIZE OF PVC LATERAL Stub TO MATCH LATERAL SIZE.
5. PROVIDE BETWEEN 3" AND 6" OF CLEARANCE BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
6. ALL CLEANOUT DEPTHS LABELED AS CRITICAL DEPTH LATERALS SHALL BE INSTALLED PER CONFIGURATION ON DETAIL S-2.05.
7. METALLIC DETECTABLE REINFORCED UNDERGROUND MARKING TAPE TO BE PLACED WITHIN ENTIRE LIMITS OF SEWER LATERAL TRENCH – REFER TO DETAIL S-3.01 FOR CONFIGURATION.
NOTES:

1. FRAME AND COVER ASSEMBLY SHALL BE CENTERED OVER CLEANOUT RISER.
2. HDPE COMPOSITE SUPPORT RING BASE MAY BE SUBSTITUTED FOR CONCRETE RING IN NON–TRAFFIC AREA. HDPE SUPPORT RING IS NOT PERMITTED IN TRAFFIC BEARING AREA.
3. CLEANOUT FRAME AND COVER SHALL BE INSTALLED BY UTILITY CONTRACTOR PRIOR TO SUBSTANTIAL COMPLETION INSPECTION FOR DEVELOPMENT PROJECTS.
5. CLEANOUT COVER SHALL HAVE A RAISED DIAMOND PATTERN WITH A 2" MIN. RAISED "S" IMPRINTED IN SHARP FACE GOTHIC AT CENTER OF COVER. A SINGLE 1" MIN. WIDE PICKHOLE SHALL BE PROVIDED AT EDGE.
6. SEWER CLEANOUT COVERS LOCATED WITHIN A PEDESTRIAN WALKWAY MUST BE ADA COMPLIANT.
7. REFER TO CURRENT DELDOT REQUIREMENTS FOR INSTALLATIONS WITHIN DELDOT RIGHT-OF-WAY.
NOTES:

1. FRAME AND COVER ASSEMBLY SHALL BE CENTERED OVER THE CLEANOUT RISER.
2. HDPE COMPOSITE SUPPORT RING BASE MAY BE SUBSTITUTED FOR CONCRETE RING IN NON-TRAFFIC AREA. HDPE SUPPORT RING IS NOT PERMITTED IN TRAFFIC BEARING AREA.
3. CLEANOUT FRAME AND COVER SHALL BE INSTALLED BY UTILITY CONTRACTOR PRIOR TO SUBSTANTIAL COMPLETION INSPECTION FOR DEVELOPMENT PROJECTS.
5. CLEANOUT COVER SHALL HAVE A RAISED DIAMOND PATTERN WITH A 2" MIN. RAISED "S" IMPRINTED IN SHARP FACE GOTHIC AT CENTER OF COVER. A SINGLE 1" MIN. WIDE PICKHOLE SHALL BE PROVIDED AT EDGE.
6. SEWER CLEANOUT COVERS LOCATED WITHIN A PEDESTRIAN WALKWAY MUST BE ADA COMPLIANT.
7. REFER TO CURRENT DELDOT REQUIREMENTS FOR INSTALLATIONS WITHIN DELDOT RIGHT-OF-WAY.
NOTES:
1. DEEP LATERAL CLEANOUT DETAIL APPLIES TO BOTH 6" AND 8" LATERALS.
2. A MINIMUM OF 3" CLEARANCE SHALL BE PROVIDED BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
3. MINIMUM CLEARANCE IS 18" TO WATER MAIN, AND 12" TO ALL OTHER UTILITIES.
NOTE:
LATERALS SHOWN ON THE PLANS AS CRITICAL DEPTH LATERALS WILL BE INSTALLED IN THE SAME FASHION AS SHALLOW LATERALS REGARDLESS OF THE TRENCH DEPTH. FOR MAINS GREATER THAN 9' TO CROWN SEE RISER DETAIL S-2.06.
NOTES:
1. LATERAL RISER DETAIL APPLIES TO BOTH 6 AND 8-INCH LATERALS. SIZE OF REQUIRED ADAPTERS, LATERALS, BENDS, CASING PIPES AND SHOES SHALL BE COORDINATED WITH THE REQUIRED LATERAL SIZE.
2. THE RISER CONFIGURATION SHOWN ABOVE REFLECTS THE DEEP SEWER RISER KIT AS MANUFACTURED BY THE HARRINGTON COMPANY (HARCO). AN ALTERNATE ALL-PLASTIC VERTICAL RISER KIT AS MANUFACTURED BY NORTH AMERICAN PIPE CORPORATION (NAPCO) MAY BE USED AS A SUBSTITUTE.
8" CLEANOUT FRAME, COVER, AND RING—SEE DETAIL S-2.03

CLEANOUT ADAPTER AND RECESSED PLUG

SEE DETAIL S-2.03 FOR CLEANOUT RING.

SDR-26 90° SWEEP BEND (SEE NOTE 2)

NOTES:
1. PROVIDE BETWEEN 3" AND 6" OF CLEARANCE BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
2. STONE BEDDING SHALL BE PLACED AROUND 90° BEND PER DETAIL S-2.09 FOR ALL DEPTHS.
3. SEE DETAIL S-1.01 FOR CONCRETE COLLAR REQUIREMENTS.
NOTES:
1. REFER TO APPROPRIATE SEWER CLEANOUT DETAILS FOR STANDARD CONFIGURATIONS.
2. REFER TO PLAN FOR LATERAL AND CLEANOUT SIZE.
8" CLEANOUT FRAME, COVER, AND RING, SEE DETAIL S-2.03

CLEANOUT ADAPTER AND RECESSED PLUG

8" PVC (SDR-35)

PLUG OR CAP 8" GRAVITY STUB FOR FUTURE EXTENSION

8" MIN. #57 STONE ALL AROUND FITTING

SEE PLANS FOR SIZE AND MATERIAL OF GRAVITY MAIN

SDR 26 TEE OR TEE-WYE BRANCH

NOTES:
1. PROVIDE BETWEEN 3" AND 6" OF CLEARANCE BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
2. ALL INVERTS OF TEE-WYE CONNECTIONS SHALL BE FIELD SURVEYED FOR FINAL AS-BUILTS.
3. TEE INSPECTION PORT SHALL BE REMOVED AT THE TIME OF EXTENSION OF GRAVITY SEWER SYSTEM.
SEWER LATERAL CAPPING

SHALLOW CONFIGURATION

SEWER MAIN

CAP EXISTING LATERAL AT WYE.

EXISTING LATERAL TO BE REMOVED

DEEP CONFIGURATION

SEWER MAIN

LATERAL PIPE TO BE REMOVED

CASING PIPE AND RISER PIPE TO BE REMOVED.

CAP EXISTING LATERAL AT WYE

SEWER MAIN

APPROVED: SUSSEX COUNTY ENGINEER

DATE ISSUED: 12/30/2021
WORK SCOPE

A. Cleanly cut existing lateral on road side of existing cleanout and at new tie-in location.
B. Remove vertical cleanout appurtenances and section of existing sewer lateral up to new tie-in location.
C. Install new section of sewer lateral including new cleanout, wye, bend and related appurtenances.
D. Tie-in to existing house side sewer lateral using an appropriate coupling connection or repair sleeve as needed.

NOTES:

1. Location of new cleanout shall be as noted on the plans or in the utility statement, or as directed by the Sussex County Inspector.
2. Slope of new section of sewer lateral shall match existing unless directed otherwise by the Sussex County Inspector.
3. Removal and/or tie-in locations shall be a minimum of 2 feet from existing pipe joints.
4. Work shall be scheduled and performed in a manner to minimize sewer service disruption.
5. Refer to Sussex County Detail S-2.01 for new sewer lateral cleanout.

GENERAL NOTE:

This detail applies to required horizontal relocation of a sewer cleanout due to conflict with roadway or other site construction activities.
NOTES:
1. THIS DETAIL APPLIES TO BOTH GRAVITY AND FORCE MAIN SEWER INSTALLATIONS.
2. #57 STONE IS REQUIRED FOR BEDDING MATERIAL AND INITIAL BACKFILL TO 12" ABOVE THE PIPE CROWN FOR ALL SEWER INSTALLATIONS 12' DEEP AND GREATER. FOR INSTALLATIONS LESS THAN 12' DEEP, INITIAL BACKFILL MATERIAL REQUIREMENTS MAY BE MODIFIED BASED ON FIELD CONDITIONS, AS APPROVED BY THE COUNTY. ABOVE INITIAL BACKFILL, MATERIAL MEETING THE REQUIREMENTS OF TYPE F BORROW PER DELDOT'S SPECIFICATIONS SHALL BE USED.
3. FOR INSTALLATION WITHIN LIMITS OF DELDOT ROADWAY AND/OR RIGHT-OF-WAY, TRENCH CONFIGURATIONS AND BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH CURRENT DELDOT REQUIREMENTS.
NOTES:

1. SEWER ENCASEMENT AT UTILITY CROSSING SHALL BE AT LOCATIONS SHOWN ON DESIGN PLANS OR REQUIRED BY THE COUNTY. ENCASEMENT SHALL EXTEND A MINIMUM OF FIVE (5) FEET ON EITHER SIDE OF UTILITY CROSSING, EXCEPT AT WATER MAINS.

2. SEWER ENCASEMENT AT WATER MAIN CROSSINGS SHALL BE A MINIMUM OF TEN (10) FEET IN LENGTH OR AS DIRECTED BY THE COUNTY ENGINEER.

3. THE CROSSING SHALL BE ARRANGED SUCH THAT THE SEWER PIPE JOINTS WILL BE EQUAL DISTANCES AND AS FAR AS POSSIBLE FROM JOINTS OF CROSSING UTILITY PIPE.
### Table: Casing Sleeve Installation

<table>
<thead>
<tr>
<th>CARRIER PIPE (IN.)</th>
<th>MINIMUM O.D. CASING PIPE (IN.)</th>
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#### Notes:
1. Detail applies to both jack and bore and open cut installations.
2. End seal shall be installed on each end of casing pipe.
3. Casing spacers shall be installed 1" (max.) from each side of any carrier pipe joint, and a minimum of 6" on center along the carrier pipe in between joints.
4. Preferred configuration is with carrier pipe centered within casing pipe. Off-centered configuration may be utilized depending on site conditions as approved by the County.
5. See table above for minimum casing pipe size. If restrained joints are used, casing pipe diameter shall be modified as required to accommodate the pipe restraints.
Pipe Crossing Protection

NOTES:
1. Detail applies to crossings with less than 12" clearance between proposed drainage pipe and existing county pipe. For crossings with drainage pipe below county pipe, a special pipe support detail must be submitted to the county for approval. County pipe refer to sewer or water pipe, as applicable.
2. Drainage pipe shall be placed such that centerline of pipe segment is within 12" of centerline of county pipe.
3. All excavation in vicinity of county pipe shall be accomplished by hand excavation. Subgrade below max. excavation limits shown shall remain undisturbed.
4. Concrete supports at drainage pipe joints shall be formed against undisturbed subgrade. For non-concrete drainage pipes, supports shall be located 18 inches clear on either side of county pipe.
5. Following placement of drainage pipe segment, flowable fill shall be applied to completely fill voids beneath pipe. Refer to DelDOT or other third party specifications for fill requirements above this level.
NOTES:
1. CONCRETE COLLAR NOT SHOWN FOR CLARITY. FOR CONCRETE COLLAR REQUIREMENTS, REFER TO DETAIL S-1.01.
2. ROUTE DETECTION WIRE OUTSIDE OF ARV AND PROVIDE TONING WIRE VALVE BOX ADJACENT TO ARV STRUCTURE. SEE DETAIL S-4.07.
3. DUCTILE IRON FLANGE TEE WILL BE FORCE MAIN SIZE x 4" TEE.
4. HINGED FRAME AND COVER SHALL BE PER EAST JORDAN IRON WORKS PRODUCT NO. 00148064L01, OR APPROVED EQUAL.

<table>
<thead>
<tr>
<th>FORCE MAIN DIA.</th>
<th>ARV</th>
<th>TAP FLANGE</th>
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<td>≤ 16&quot;</td>
<td>2&quot;</td>
<td>4&quot;x2&quot;</td>
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<tr>
<td>&gt; 16&quot;</td>
<td>3&quot;</td>
<td>4&quot;x3&quot;</td>
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NOTE:
IF AIR RELEASE MANHOLE IS A TIGHT FIT, THE CRISPIN ARV CAN BE USED PER COUNTY APPROVAL.
### BUTTRESS DIMENSIONS

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<th>CONFIGURATION</th>
<th>PIPE DIAMETER (D) IN INCHES (I.D.)</th>
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<td>2</td>
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SEE DETAIL S-4.03 FOR CONFIGURATIONS.

**NOTES:**

1. ALL CONCRETE TO HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. BUTTRESS DIMENSIONS GIVEN ARE MINIMUM DIMENSIONS BASED UPON 3000 PSF MINIMUM SOIL BEARING CAPACITY AND 150 PSI MAXIMUM INTERNAL PIPE PRESSURE. PARAMETERS OUTSIDE OF THESE TOLERANCES WILL REQUIRE A SPECIAL BUTTRESS DESIGN APPROVED BY THE COUNTY.
3. ALL CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. TEE DIMENSIONS IN TABLE SHALL BE USED FOR WYES.
NOTES:
1. CONCRETE COLLAR NOT SHOWN FOR CLARITY. REFER TO DETAIL S-4.06 FOR COLLAR REQUIREMENTS.
2. LID MUST BE ADA COMPLIANT IF LOCATED WITHIN A PEDESTRIAN WALKWAY.
VALVE BOX DROP LID STAMPED WITH "SEWER"
FINISHED GRADE

4,000 PSI CONCRETE COLLAR, WITH 6X6 #6 WIRE REINF.
OPERATING NUT EXTENSION TO 6" BELOW TOP OF BOX
6 INCH SCREW TYPE VALVE BOX
GATE VALVE OR PLUG VALVE – SEE DESIGN DRAWINGS

#67 STONE AGGREGATE 8” ALL AROUND GATE VALVE CONNECTION

SEE PLANS FOR SIZE AND MATERIAL OF FORCE MAIN PIPE

NOTES:
1. IF VALVE IS LOCATED WITHIN PAVEMENT, CONCRETE COLLAR IS NOT REQUIRED. SEE ALSO NOTE 2 ON DETAIL S-1.01.
2. EXTEND TONING WIRE INTO VALVE BOX. SEE DETAIL S-4.07.
3. LID MUST BE ADA COMPLIANT IF LOCATED WITHIN A PEDESTRIAN WALKWAY.
Notes:
1. If toning wire box is located within pavement, concrete collar is not required. See also note 2 on detail S-1.01 regarding location within DelDot roadway.
2. Lid must be ADA compliant if located within a pedestrian walkway.
NOTE:
FOR TRANSITIONS BETWEEN HDPE PIPE AND NON-HDPE PIPE, AN
APPROPRIATELY DESIGNED CONCRETE THRUST COLLAR AROUND A POLY
WALL ANCHOR SHALL BE INCORPORATED TO ACCOUNT FOR THE
POISSON EFFECT OF THE HDPE PIPE. AS AN ALTERNATIVE, ADDITIONAL
JOINT RESTRAINTS SHALL BE INCORPORATED OUTSIDE THE LIMITS OF
HDPE PIPING, AS APPROVED BY THE COUNTY.